

REMARKS

By this Amendment, claims 1-9, 12 and 13 are amended. Support for the changes to claims 1 and 12 is found at page 15, lines 5-22 and at page 16, line 24-page 17, line 5 of the specification. Support for the changes to claims 2, 5 and 9 is found at page 14, page 17, line 14-page 18, line 7, and at page 20, line 12-page 21, line 1, respectively. Claims 3,4, 6-8 and 13 have been amended for consistency with the aforementioned changes and to correct minor typographical errors. For example, the term “measuring condition” in claims 1, 3, 4 and 13 has been changed to “examination condition” for consistency with the Examination Conditions recited at page 14 in Table 1. Claims 1-19 are presented for further examination.

Reconsideration of the objection to claim 5 is respectfully requested. The term “z-axis” has been deleted. No additional correction is believed necessary.

The rejection of claims 1-6, 10, 12-16 and 18 under 35 U.S.C. § 102(b) over Ito (US 6,456,896) and the rejection of claims 1-6, 8-10 and 12-18 under 35 U.S.C. § 102(b) over Kakino (US 6,501,997) are respectfully traversed with respect to the amended claims.

Initially, claims 1 and 12 have been amended to recite, prior to machining, obtaining positioning response data until stabilizing a position deviation within a predetermined allowable range from a command-reach time after moving the work in each of the X- and Y- axis directions relative to a Z-axis corresponding to an axis of the tool. As recited at page 15, lines 5-22 of the specification, a stabilization time is the time required from the command-reach time, on which the positioning command signal reaches the value determined from the aimed position, until the position deviation enters the predetermined allowable range.

Claims 1 and 12 further require determining a lowering timing of movement of the tool in the Z-axis direction based on the obtained positioning response data. As recited at page 17, lines 2-4, the Z-axis lowering time is calculated using the stabilization time. These limitations are not disclosed or

suggested by Ito or Kakino. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

Independent claim 13 recites, in pertinent part, that the table and the tool are moved in two directions perpendicular to the Z-axis under specified examination conditions, wherein a stabilization time is required until position response of said moving reaches and stays within a predetermined allowable range after a command-reach time of a positioning command, and at the time of machining, the tool is moved in the Z-axis direction based on the obtained stabilization time.

Ito and Kakino do not require a stabilization time with respect to the movement in two directions perpendicular to the Z-axis. With respect to Ito, the Office Action cites Z-axis displacement curves (Figures 5-7 of Ito) for the proposition that the displacement stabilizes after a certain time. However, the displacements shown in Figure 5-7 of Ito do not teach that a stabilization time is required until position response of movement in two directions perpendicular to the Z-axis reaches and stays within a predetermined allowable range, much less that the tool is (later) moved in the Z-axis direction based on the obtained stabilization time.

In the section of Kakino cited by the Office Action, Kakino discloses that there is a preferred relationship between the position loop gain and the velocity loop gain (column 14, lines 30-38). At column 13, lines 1-17, Kakino further discloses that in the case of ball end milling, the position loops gains and the feed rate “are determined to the maximum value,” and in the case of general end milling the “position loop gain and the feed rate are determined similarly, and as for the Z-axis direction, only the position loop gain may be determined.”

Thus, Kakino does not teach that a stabilization time is required until position response of movement in two directions perpendicular to the Z-axis reaches and stays within a predetermined allowable range, much less that the tool is moved in the Z-axis direction based on the obtained stabilization time.

Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

The rejections of claims 11 and 19 under 35 U.S.C. § 103(a) over Ito or Kakino in view of Hamaya (US 5,189,352) is respectfully traversed.

Hamaya, which was cited for teaching a drilling machine that controls a printed wiring board, fails to remedy the deficiencies of Ito or Kakino with respect to independent claims 1, 12 and 13 from which claims 11 and 19 depend. Thus, claims 11 and 19 are patentable over the cited references for at least the reasons that claim 1, 12 and 13 are patentable.

The rejections of claim 7 under 35 U.S.C. § 103(a) over Ito or Kakino in view of Miyajima (US 5,931,070) is respectfully traversed.

Miyajima, which was cited for teaching a movement start position, fails to remedy the deficiencies of Ito or Kakino with respect to claim 1. Reconsideration and withdrawal of the rejection are respectfully requested.

In view of the foregoing, the application is respectfully submitted to be in condition for allowance, and prompt favorable action thereon is earnestly solicited.

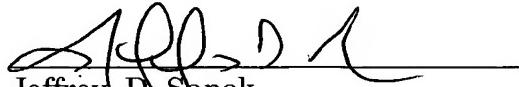
If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned at (202) 624-2995 would be appreciated since this should expedite the prosecution of the application for all concerned.

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If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #029116.52830US).

Respectfully submitted,

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